

**Technical Assistance to Estimate the Economic Impact
of the Luxor Incident**

Final Report

Submitted to

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Technical Assistance to Estimate the Economic Impact of the Luxor Incident

Executive Summary

On November 18, 1997, gunmen opened fire on a group of tourists who had just arrived at the Hatshepsut Temple in the desert outside Luxor. The brutality left 58 tourists and four Egyptians dead. Besides the obvious and most significant loss of human life, the economic repercussions on Egypt were immediate. Cancellation of tours and country-issued warnings abroad caused visitor arrivals, hotel occupancy rates and prices to plummet over the following months. This report attempts to quantify these losses. The scope of work includes the estimation of the following indicators:

1. **The impact on visitor arrivals** based on quantitative (econometric) methods that take into account the impact of similar incidents over recent history;
2. **The impact on visitor spending** based on similar quantitative methods, review of government and private information sources, and direct surveys of government officials and private operators;
3. **The impacts of this reduced visitor spending on production (GDP) and imports** using input-output and econometric methods.

Both monthly and annual econometric single-equation models were the basis for WEFA's estimate of the impact on visitor arrivals. WEFA estimated the impact on visitor spending using an annual econometric model, in conjunction with WEFA's estimate of the impact on arrivals and an analysis of spending patterns of tourists from different regions. WEFA estimated the impacts of this reduced visitor spending on production (GDP) and imports using an estimate of the spending pattern of visitors, based on data from other countries in the area, and the 32-sector 1996/97 input-output table of the Egyptian economy.

The final results are given in **Table 1**.

Table 1

Economic Impact of the Luxor Incident Billion \$US, except Arrivals

Visitor Arrivals (Mill)	1.19
Visitor Spending	1.81
Direct GDP	1.20
Indirect GDP	0.38
Imports	0.23
Induced GDP	2.01
Total Impact	3.59

Background

Tourism stands as a significant contributor to Egypt's economy. Tourism receipts alone account for close to 6% of GDP. When including capital investment and government expenditures and excluding merchandise imports related to tourism, the industry's share of GDP jumps to 11%. In addition, the tourism sector in Egypt is poised to be a source of consistent economic growth over the next five years. In the years 1995-1997, tourism receipts grew 33%, 19% and 20%, respectively. Although this sort of growth cannot be sustained over an extended period, tourism has clearly shown its propensity to outpace the rest of the economy. This is generally in line with the rest of the region that has experienced strong (although volatile) growth over the past ten years. However, Egypt has shined as the premier example in its region of a burgeoning tourism market. The Tourism Development Authority (TDA) has set ambitious growth targets for the new millennium in terms of hotel capacity and visitor arrivals. These targets are not implausible for a country such as Egypt that offers an exceptional and diverse tourism product.

The outstanding performance of the tourism industry is currently at risk. Since 1992, Egypt has been subject to isolated outbreaks of terrorism that have been directed primarily toward foreign visitors. Militant Islamic groups have designated tourism as a prime venue for dissension given that attacks on tourists have a far-reaching economic and political impact. In addition, tourism is opposed by militant fundamentalists who claim tourists are responsible for spreading moral laxity in Egypt. The negative impact of tourism-related terrorism goes beyond the shock to the tourism industry. Foreign direct investment and portfolio investments traditionally respond negatively to these incidents which are highly publicized throughout the international community.

In Egypt, President Mubarak has set an agenda of economic privatization that has been effective in producing economic growth. However, privatization and its corresponding employment cutbacks are not universally popular. Dissidents hope to weaken the Mubarak administration by undermining the potential benefits of privatization and thus calling into question the government's policy agenda.

The latest and most horrific outbreak of such violence occurred at the Hatshepsut Temple in the desert outside Luxor. On November 18, 1997, gunmen opened fire on a group of tourists who had just arrived at the site. The militant organization Al-Jamaa Al-Islamiyah (Islamic Group) claimed responsibility for the brutality that left 58 tourists and four Egyptians dead.

This report details the economic impact of the Luxor incident based on available data as of February, 1999 and econometric models designed to capture losses both in terms of visitor arrivals and tourism spending. Historical impacts of other terrorist acts are examined and compared.

Historical Review

Since 1992, Egypt has been subject to multiple acts of terrorism toward its tourists. Below is a list of significant incidents leading up to Luxor:

1992

- October 21 — Bus is attacked near Dairut and a British nurse is killed.

1993

- February 26 — Bomb explodes at a coffee shop in Cairo killing two tourists and one Egyptian and injuring eighteen others.
- October 26 — Gunman kills two Americans and a Frenchman and wounds three others inside a luxury Cairo Hotel.

1994

- March 4 — Machine-gun fire at a Nile cruise ship kills a German woman.

1995

- August 26 — Extremists shoot at a tourist bus in southern Egypt. A 13-year-old Spanish boy is killed and three others are wounded.
- September 27 — Gunman opens fire in downtown Hurghada, a Red Sea resort city. Two Germans and two Egyptians are killed.
- October 23 — Suspected extremist fires on a van in southern Egypt. A British man is killed and four others—three British and one Egyptian—are wounded.

1996

- April 18 — Gunman opens fire at a hotel near the pyramids in Cairo, killing 18 Greek tourists and wounding 16 others.

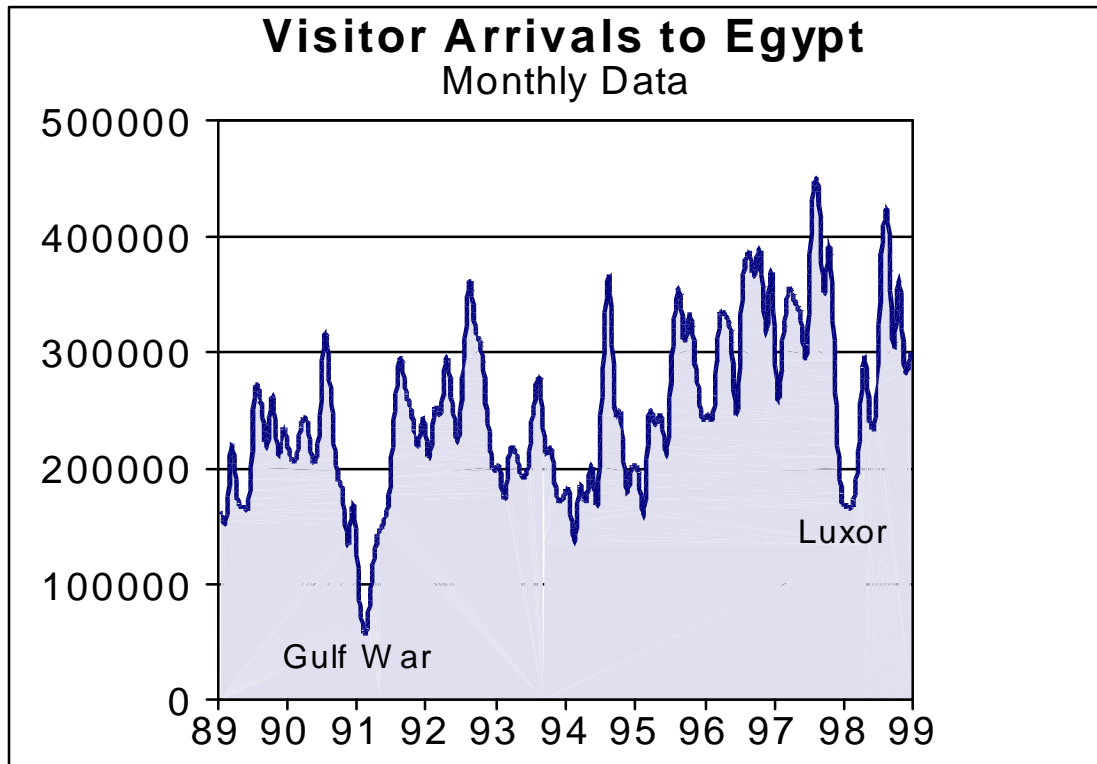
1997

- September 18 — Terrorists throw firebombs and open fire on a tourist bus outside a museum in Cairo. The attack kills 10 people, many of them German tourists, and wounds 18.

History and economic theory indicate the clear reaction of visitors to potential or perceived danger. Tourism is a luxury good with many substitutable destinations. This makes the elasticity of any given destination relatively high particularly in response to personal risk.

This can be seen over the past eight years as the above events have triggered international caution in either Egypt specifically or the region generally. From late 1990 through early 1991, the Gulf War clearly repelled tourists from the entire region. The impacts of terrorist acts over history are relatively less severe. In addition **Figure 1** indicates that tourist preferences seem to be affected for only a period of months after the incident occurs. Following are the incidences of terrorism that registered clear impacts on visitor arrivals to Egypt.

- February 1993 bomb in Tahrir Square, Cairo
- October 1993 attack in Cairo hotel
- March 1994 machine-gunning of Nile cruise ship
- September 1997 attack on tourist bus
- November 1997 attack on tourists in Luxor

Figure 1

A first look at the post-“Luxor” data for 1998 reveals a significant downturn in visitor arrivals. The international exposure of the event and the perceived danger to tourists was extremely high. The economic impact of the incident clearly rivals that of the Gulf War.

Econometric Analysis of the Visitor Arrival Data

In order to quantify the economic impact, WEFA developed models to estimate what tourist spending would have been in the absence of the incident. The difference between this and actual tourism spending provides WEFA's estimate of the initial economic impact.

Overview of Approach

1. A monthly-frequency model is used to estimate the impact on visitor arrivals over available history in 1997 and 1998.
2. An annual frequency model is used to estimate the economic impact on visitor arrivals and tourism receipts. In addition, losses to fare receipts are calculated. These results represent the *initial demand impact*. That is, they include the direct and indirect impacts but do not include the induced, or multiplier effect.
3. These results from (2) are used in conjunction with the Egyptian I-O table in order to break out the *Direct and Indirect impacts by industry, including imports*.
4. A macroeconomic model for Egypt estimates multipliers to be applied to the initial demand impact in order to derive the *total economic impact* of the Luxor incident.

Monthly Approach

The most sensitive indicator of the effect of the Luxor incident on tourism is the monthly visitor arrival data. These data go back to November 1986 and are continuous through September of 1998, with estimates used for the last three months.

WEFA used two approaches in analyzing the monthly visitor arrivals data. Both involved linear regression and the use of “dummy” variables. This section begins with a description of the regression itself and of the results that arise directly from that.

The data was examined both in its not-seasonally-adjusted form and after seasonal adjustment. WEFA feels that, because non-economic events such as terrorism incidents are frequent, the seasonal adjustment process biases the data. Analysis of seasonally adjusted data confirmed this.

Because of the highly seasonal nature of visitor arrivals, seasonal dummies were used in the estimated econometric equation in place of seasonal adjustment of the data prior to equation estimation. Dummy variables are variables that are used to capture the effect of a one-time event or of a recurring event. The dummy variable usually has the value one at the date of the event and zero elsewhere. The coefficient of the variable is thus a measure of the importance of the event. A monthly seasonal dummy has the value one for the same month each year, zero for all other months.

The dependent variable in the equation is the level of visitor arrivals. The economic independent variable is a weighting of real consumption indices for countries that are a source of Egyptian tourism. This variable enters the equation with a t-statistic of over 17 and explains the trend in arrivals.

The remaining independent variables are dummy variables for the different terrorism events over the period and for the 1990-91 Gulf War. These dummies all had entries for periods of seven to twelve months from the date of the event and following. The following are the events that had statistically significant impacts on visitor arrivals:

- Gulf War troop buildup, beginning in August 1990, shortly after the invasion of Kuwait
- Gulf War, beginning in January 1991
- February 1993 bomb in Tahrir Square, Cairo
- October 1993 attack in Cairo hotel
- March 1994 machine-gunning of Nile cruise ship
- September 1997 attack on tourist bus
- November 1997 attack on tourists in Luxor

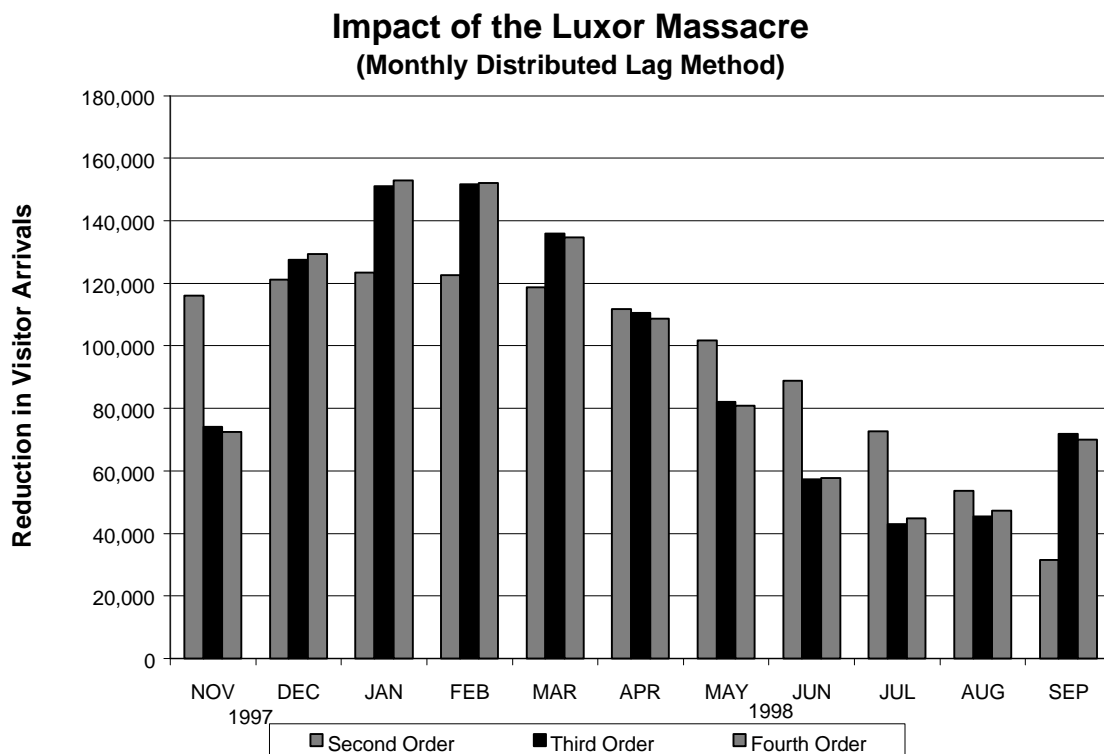
The estimated equation did not capture impacts of the three events in August, September and October 1995. That is, the estimated coefficients on dummy variables for these events were statistically insignificant, with t-statistics less than one.

The first method for estimating the impact of the Luxor incident used the same approach as was used in estimating the dummy variables for the other incidents. This approach used polynomial distributed lags on a dummy variable whose value is one for the month in which the incident occurred. The coefficient of each of the lag periods is a measure of

the impact in that month. The biases in this method are two-fold: the lag period is limited; and the coefficients are constrained to a polynomial whose independent variable is time.

The results for the Luxor polynomial distributed lags appear in **Figure 2**. Three results are shown: for polynomials of second, third and fourth degree. The quadratic, or second degree, polynomial constrains the pattern to be too smooth and does not capture the sharp difference between November and December 1997. The third and fourth degree polynomials give essentially the same results. The results for the third degree produced better statistics; that is, they are more precise estimates of the impact.

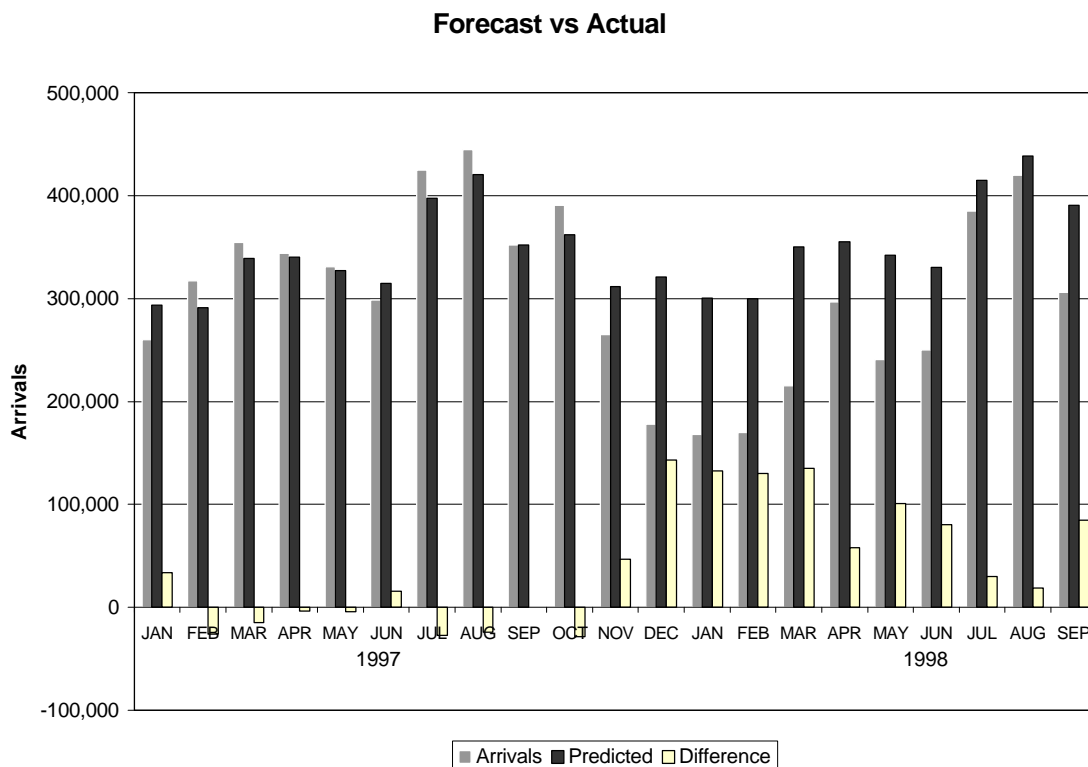
Figure 2



The second approach was to estimate the equation only through August 1997 and to forecast the remainder of the period without a variable for the Luxor incident. The difference between this forecast and actual visitor arrivals is our second measure of the impact derived from the monthly data.

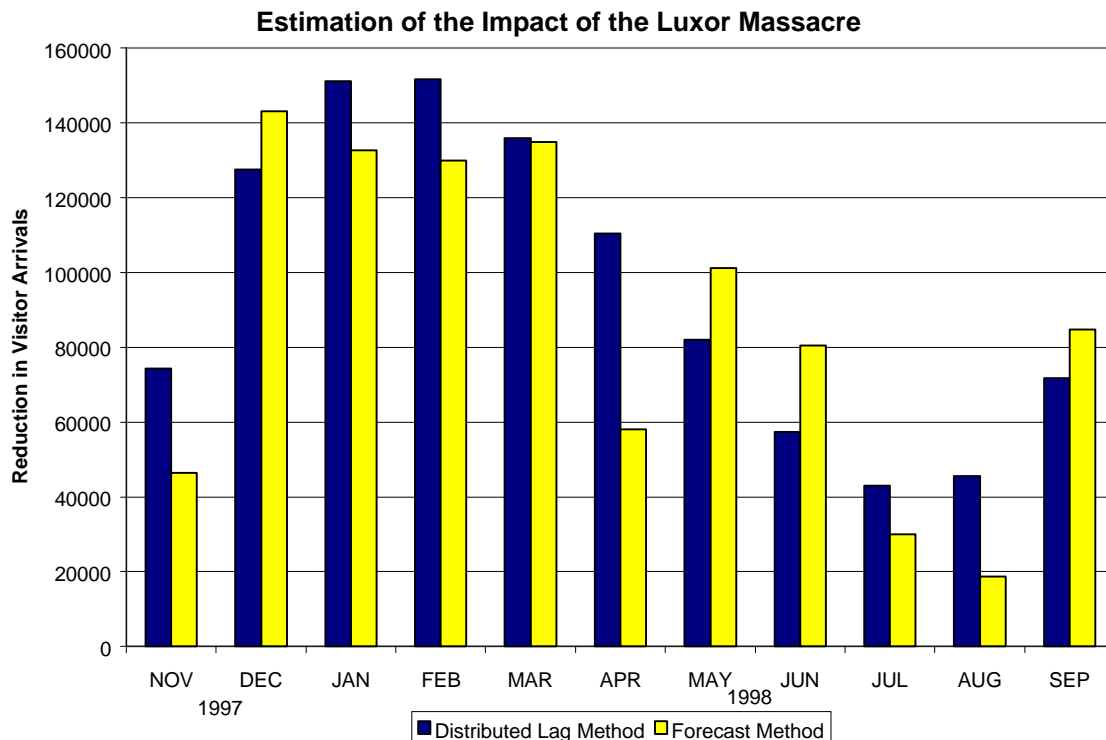
Figure 3 provides the results of this procedure from January 1997 through September 1998. Between January and October 1997, the difference between the forecast and actual arrivals represents the forecast error. Over this period, the percent standard error is 6.5%. The percent standard error over the entire estimation period beginning in November 1986 is 15.1%.

Figure 3



The difference between the forecast and actual values from November 1997 forward is an estimate of the impact of the Luxor incident. **Figure 4** shows the results of the two methods. The distributed-lag method constrains the data to a smooth curve, but is not necessarily less precise. It does clearly over-estimate the impact in November 1997. However, the monthly impacts estimated by the forecast method appear to show a great deal of noise from April 1998 on. Therefore, the best estimate of the actual impact is probably an average of the two. For the period through August 1998 the total loss of visitors is 927 thousand visitors, with a probable range of 60 thousand around this value.

Figure 4



Below is the equation used to estimate the impact on visitor arrivals.

ARRIVALS

Restricted Ordinary Least Squares

MONTHLY data for 131 periods from NOV 1986 to SEP 1997

Date: 22 JAN 1999

arrivals

$$\begin{aligned}
 = & + 1213800 * wtdce - 513554 * dum90m8 - 333557 * dum91m1 \\
 & (17.0351) \quad (3.80740) \quad (2.90487) \\
 & - 353471 * dum93m2 - 42480.8 * dum93m10 - 549003 * dum94m3 \\
 & (2.95958) \quad (1.14824) \quad (4.64179) \\
 & - 157012 * dum97m9 - 616124 - 3591.78 * SEASON_2 \\
 & (0.52424) \quad (12.6445) \quad (0.24466) \\
 & + 43479.3 * SEASON_3 + 44626.5 * SEASON_4 + 28769.3 * SEASON_5 \\
 & (2.95258) \quad (3.03003) \quad (1.95375) \\
 & + 14014.4 * SEASON_6 + 95180.4 * SEASON_7 + 115226 * SEASON_8 \\
 & (0.95231) \quad (6.47195) \quad (7.84138) \\
 & + 63402.1 * SEASON_9 + 69360.3 * SEASON10 + 16467.7 * SEASON11 \\
 & (4.20254) \quad (4.47300) \quad (1.12084) \\
 & + 23468.8 * SEASON12 \\
 & (1.59861)
 \end{aligned}$$

Sum Sq	1E+11	Std Err	34312.1	LHS Mean	227148
R Sq	0.8331	R Bar Sq	0.7972	F 23,107	23.2156
D.W.(1)	0.7795	D.W.(12)	1.5808		

Table 2**ARRIVALS FORECAST**

Monthly

1997	Arrivals	Predicted	Difference
JAN	259890.00	293421.25	33531.25
FEB	317092.00	291025.20	-26066.80
MAR	354423.00	339293.61	-15129.39
APR	344141.00	340526.39	-3614.61
MAY	331278.00	326981.53	-4296.47
JUN	298763.00	314544.79	15781.79
JUL	425079.00	397673.57	-27405.43
AUG	444719.00	420409.76	-24309.24
SEP	352066.00	352066.00	0.00
OCT	390884.00	362097.56	-28786.44
NOV	265160.00	311511.57	46351.57
DEC	177921.00	321073.85	143152.85
1998			
JAN	168000.00	300516.02	132516.02
FEB	170000.00	299836.15	129836.15
MAR	215000.00	349931.85	134931.85
APR	297000.00	355037.94	58037.94
MAY	241000.00	342065.03	101065.03
JUN	250000.00	330509.46	80509.46
JUL	385000.00	415032.89	30032.89
AUG	420000.00	438751.04	18751.04
SEP	306000.00	390757.75	84757.75

Annual Approach

WEFA also conducted its economic analysis of the incident's impact on an annual basis. The annual approach is not as sensitive as the monthly approach. The monthly analysis has the advantage of distributing the impact across individual months. This is particularly helpful for observing (1) the impact experienced in the last month and a half of 1997 and (2) the monthly distribution of the impact in 1998. This latter was used for converting the annual calendar year results to fiscal year results.

However, the annual approach has two distinct advantages. The first is that potential issues of seasonality in the data are removed. The second is that, generally speaking, annual data are more complete and readily available than monthly data. Because of this, WEFA was able to include additional explanatory (independent) variables—such as tourism receipts and arrivals in the region—in its equations, thus giving a higher degree of confidence in the results. Both visitor arrivals and tourism receipts were estimated using the annual methodology. While the monthly approach has distinct advantages for observing the immediate effects of “Luxor”, the annual approach has particular advantages in determining the continued effects over the following five years.

The essential approach here is quite similar to what was used for the monthly analysis. First, we must forecast what arrivals and receipts would have been in the absence of the Luxor incident. We call this the “no incident scenario.” WEFA decided to begin this forecast in 1998 and simply use the results from the monthly analysis to estimate the 1997 impact. Second, we must make a separate forecast of the same variables using all available history. This “reality scenario” includes historical data or estimates through the end of 1998. The remaining five years are forecasted using econometrics and an estimate for the recovery period. The difference between the “reality scenario” and the “no incident scenario” equals the impact on initial final demand.

The equation for visitor arrivals uses three separate independent (right hand side) variables. The first is visitor arrivals to competitors in the region. This is noted as “regarrive” in the equation below. The sum of Turkey, Greece, Tunisia and Morocco visitor arrivals is used for this indicator. The second is a weighted average index of real (inflation and exchange rate adjusted) GDP for the countries that send the majority of visitors to Egypt (noted as “sourcegdp”). As would be expected, the sign for this coefficient is positive indicating a direct relationship between source countries' GDP and visitors to Egypt. The third variable is a dummy variable used to account for the significant events of the Gulf War in 1991 and the terrorist activities toward tourists in 1993. An explanation of the usefulness of dummy variables is included above in the monthly approach section. The equation with its statistics and coefficients is shown on the following page.

EGARRIVE

Ordinary Least Squares

ANNUAL data for 12 periods from 1987 to 1998

log(egarrive)

$$= \begin{array}{l} 0.26174 * \log(\text{regarrive}) + 1.80129 * \log(\text{sourcegdp90d}) \\ (0.48144) \qquad\qquad\qquad (1.74914) \\ \\ - 0.17422 * \text{dum} - 3.26325 \\ (2.04047) \qquad\qquad\qquad (1.82379) \end{array}$$

Sum Sq	0.0971	Std Err	0.1102	LHS Mean	7.9133
R Sq	0.8621	R Bar Sq	0.8104	F 3, 8	16.6744
D.W.(1)	1.8824	D.W.(2)	3.0899		

It can be noted here that the coefficient and t-statistic of arrivals to competitors in the region "regarrive" is not significant given that these countries represent competition to Egypt (negative sign) as well as the overall demand for tourism in the region (positive sign).

Arrivals for the region are forecasted based on the weighted average index of real (inflation and exchange rate adjusted) GDP for the countries that send the majority of visitors to the region. See equation below.

REGARRIVE

Ordinary Least Squares

ANNUAL data for 12 periods from 1987 to 1998

Date: 28 JAN 1999

log(regarrive)

$$= \begin{array}{l} 1.79009 * \log(\text{sourcegdp90d}) + 0.00394 * \text{dum} + 1.44893 \\ (8.67068) \qquad\qquad\qquad (0.07531) \qquad\qquad\qquad (1.47100) \end{array}$$

Sum Sq	0.0411	Std Err	0.0676	LHS Mean	9.9876
R Sq	0.8931	R Bar Sq	0.8693	F 2, 9	37.5903
D.W.(1)	1.6812	D.W.(2)	1.3458		

The bases for the series "sourcegdp90d" are WEFA's Middle East & Africa macroeconomic forecasts that are produced quarterly by country analysts dedicated to particular countries in the region. The weightings used for "sourcegdp90d" are as follows:

European Union:	60%
Middle East:	23%
Asia:	10%
United States	7%

The equations used for tourism receipts are identical to those used for visitor arrivals with exception that "tourism receipts" is the dependent variable and nominal GDP is used in order to be in conformity with nominal receipts.

Tables 3A and 3B contain the results of the annual model for arrivals:

Table 3A

Calendar Year	Visitor Arrivals Impact			
	Thousands			
	Reality Scenario	No Incident Scenario	Impact %	Lost Visitors
1990	2,600.12	2,600.12	0.00%	-
1991	2,214.28	2,214.28	0.00%	-
1992	3,206.94	3,206.94	0.00%	-
1993	2,507.76	2,507.76	0.00%	-
1994	2,581.99	2,581.99	0.00%	-
1995	3,133.46	3,133.46	0.00%	-
1996	3,895.94	3,895.94	0.00%	-
1997	3,961.42	4,150.92	4.57%	189.50
1998	3,399.33	4,083.23	16.75%	683.90
1999	3,953.59	4,174.39	5.29%	220.80
2000	4,313.49	4,396.78	1.89%	83.29
2001	4,639.78	4,654.06	0.31%	14.28
2002	4,909.71	4,909.71	0.00%	-
2003	5,186.52	5,186.52	0.00%	-

Table 3B

Fiscal Year	Visitor Arrivals Impact			
	Thousands			
	Reality Scenario	No Incident Scenario	Impact %	Lost Visitors
1989/90	2,782.71	2,782.71	0.00%	
1990/91	1,970.06	1,970.06	0.00%	
1991/92	2,998.54	2,998.54	0.00%	
1992/93	2,919.09	2,919.09	0.00%	
1993/94	2,359.05	2,359.05	0.00%	
1994/95	2,831.97	2,831.97	0.00%	
1995/96	3,548.82	3,548.82	0.00%	
1996/97	4,087.15	4,087.15	0.00%	
1997/98	3,396.83	4,078.26	16.71%	681.43
1998/99	3,791.67	4,127.16	8.13%	335.49
1999/2000	4,111.38	4,242.80	3.10%	131.42
2000/01	4,456.54	4,494.98	0.86%	38.43
2001/02	4,758.12	4,763.12	0.10%	5.00
2002/03	5,031.07	5,031.07	0.00%	

An implicit statement is made about the spending per visitor when comparing these results to the Tourism Receipts results in **Tables 3A and 3B**. The impact is larger on receipts than it is on arrivals. Available data in the table below reveal that the average

length of stay per visitor went down for the nine months following the incident. This makes sense of the disparity between arrivals and receipts impact. This also fits with the composition of the visitor makeup in Egypt over the past year that has had a much larger share of Arabs who do not typically spend as much as Europeans and Asians. In addition, price cuts in the aftermath of the incident show the monetary impact to be proportionately greater than the impact on arrivals.

Table 4

Average stay of tourist (days)			
	1996	1997	1998
January	7.56	8.51	6.53
February	5.20	5.70	5.85
March	5.81	6.79	5.52
April	6.12	6.94	5.54
May	5.95	6.31	5.27
June	5.42	5.39	4.82
July	4.22	4.78	4.40
August	7.14	7.64	7.50
September	8.86	8.98	
October	5.34	6.34	
November	7.10	7.86	
December	4.46	5.11	

Tables 5A and 5B show the results of the annual model for tourism receipts:

Table 5A

Tourism Receipts Impact				
Million \$US				
Calendar Year	Reality Scenario	No Incident Scenario	Impact %	Lost Receipts
1990	1,994.00	1,994.00	0.00%	-
1991	2,029.00	2,029.00	0.00%	-
1992	2,730.00	2,730.00	0.00%	-
1993	1,927.00	1,927.00	0.00%	-
1994	2,006.00	2,006.00	0.00%	-
1995	2,684.00	2,684.00	0.00%	-
1996	3,204.00	3,204.00	0.00%	-
1997	3,847.00	4,110.52	6.41%	\$264
1998	2,962.19	3,890.60	23.86%	\$928
1999	3,691.59	4,008.50	7.91%	\$317
2000	4,119.99	4,246.99	2.99%	\$127
2001	4,441.48	4,464.68	0.52%	\$23
2002	4,788.29	4,788.29	0.00%	-
2003	5,075.42	5,075.42	0.00%	-

Table 5B

Tourism Receipts Impact				
Million \$US				
Fiscal Year	Reality Scenario	No Incident Scenario	Impact %	Lost Receipts
1990/91	2,008.15	2,008.15	0.00%	
1991/92	2,312.48	2,312.48	0.00%	
1992/93	2,405.27	2,405.27	0.00%	
1993/94	1,887.64	1,887.64	0.00%	
1994/95	2,298.90	2,298.90	0.00%	
1995/96	3,009.10	3,009.10	0.00%	
1996/97	3,646.30	3,646.30	0.00%	
1997/98	2,940.50	3,871.63	24.05%	\$931
1998/99	3,441.24	3,907.83	11.94%	\$467
1999/2000	3,864.83	4,058.30	4.77%	\$193
2000/01	4,250.00	4,309.53	1.38%	\$60
2001/02	4,581.73	4,589.85	0.18%	\$8
2002/03	4,904.40	4,904.40	0.00%	

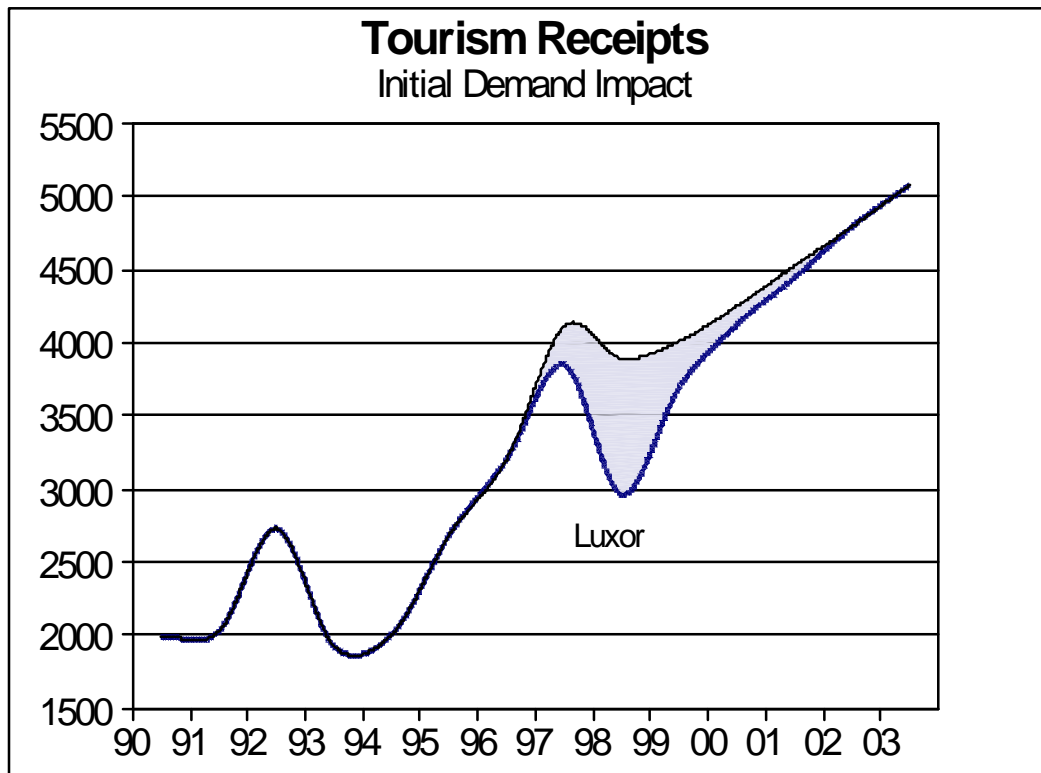
Figure 5

Figure 5 clearly depicts the foregone revenue as a result of the incident. The top line represents the "no incident scenario" and the bottom line represents the "reality scenario". The shaded area in between is the initial economic loss.

Treatment of Fare Receipts

Fare receipts are those air passenger fares that are received by Egyptian-owned airlines from international passengers. Recent history indicates an average of \$130 (using calendar year 1996) per visitor arriving by air is received by Egyptian airlines. This average accounts for the fact that many visitors fly non-Egyptian carriers. Thus, by multiplying this average fare by the number of lost visitors, an estimate of lost fare receipts is derived.

Table 6

Fare Receipts Impact				
Calendar	Million \$US		Fiscal	Million \$US
Year			Year	
1996	-		1996/97	-
1997	\$24.64		1997/98	\$88.59
1998	\$88.91		1998/99	\$43.61
1999	\$28.70		1999/2000	\$17.08
2000	\$10.83		2000/01	\$5.00
2001	\$1.86		2001/02	\$0.65
2002	-		2002/03	-

We now add the fare receipts impact to the tourism receipts impact to calculate the following Total Initial Demand Impact:

Table 7

Total Initial Demand Impact						
Calendar	Million \$US	% of GDP		Fiscal	Million \$US	% of GDP
Year				Year		
1996	-	0.00%		1996/97	-	
1997	\$288.16	0.38%		1997/98	\$1,019.72	
1998	\$1,017.32	1.27%		1998/99	\$510.21	
1999	\$345.61	0.40%		1999/2000	\$210.55	
2000	\$137.83	0.15%		2000/01	\$64.53	
2001	\$25.06	0.08%		2001/02	\$8.77	
2002	-	0.00%		2002/03	-	

Thus, the total initial demand (no multiplier) impact over the five-year (1997-2001) period is \$1,813,780,000.

Direct, Indirect and Induced Impact

Direct versus Indirect Impact

By multiplying the initial demand results through the Egyptian I-O table, a breakout of direct and indirect impact as well as import leakages can be made by industry. In this analysis, WEFA used an estimate of the spending pattern of visitors, based on data from other countries in the area, and the 32-sector 1996/97 input-output table of the Egyptian economy. A good example of the direct versus indirect impact would be a hotel versus a food product manufacturer. The loss in hotel revenue that corresponds to the hotel's value added (e.g. wages, profit) is the direct impact to the hotel. The loss in hotel revenue that corresponds to forgone purchases of food products is the indirect impact and is assigned to the food manufacturer. The direct/indirect division of the economic impact is shown in the table below.

Induced Impact

The implicit multiplier for tourism is generally higher than for most industries. This is because foreign tourism receipts represent new money into the economy. There is no substitution of spending within the country's economy. WEFA's analysis indicates a multiplier of 1.98, on which **Tables 8A** and **8B** are based. The imports leakages are included in the initial impact when the multiplier is applied. Thus, the "Total Impact" equals the total "Initial Impact" times the multiplier.

Table 8A

Economic Impact of the Luxor Incident Million \$US, except Arrivals							
Calendar Year	Visitor Arrivals (1,000)	Initial Impact*	Direct GDP	Indirect GDP	Imports	Induced GDP	Total Impact
1997	189.50	288.16	191.18	59.93	37.02	319.78	570.90
1998	683.90	1017.32	675.11	211.48	130.63	1129.02	2015.61
1999	220.80	345.61	229.23	71.93	44.42	383.51	684.67
2000	83.29	137.83	91.36	28.72	17.73	152.93	273.01
2001	14.28	25.06	16.60	5.23	3.23	27.80	49.64
Total	1191.77	1813.98	1203.48	377.30	233.02	2013.04	3593.82

* Reduction in foreign visitor spending and fares

Table 8B

Economic Impact of the Luxor Incident Million \$US, except Arrivals							
Fiscal Year	Visitor Arrivals (1,000)	Initial Impact*	Direct GDP	Indirect GDP	Imports	Induced GDP	Total Impact
1997/98	681.43	1019.72	676.66	212.01	130.95	1131.67	2020.33
1998/99	335.49	510.21	338.50	106.12	65.54	566.20	1010.81
1999/2000	131.42	210.55	139.62	43.85	27.07	233.63	417.09
2000/01	38.43	64.53	42.77	13.45	8.30	71.60	127.82
2001/02	5.00	8.77	5.81	1.83	1.13	9.73	17.37
Total	1191.77	1813.78	1203.35	377.25	232.99	2012.82	3593.43

* Reduction in foreign visitor spending and fares

Conclusions & Analysis

Initial Impact

WEFA estimates the *initial* economic impact of the Luxor massacre of November 1997, to be \$1.814 billion over the period 1997-2001. The majority (66%) of the incident's initial impact was direct. That is, it impacted the direct providers of tourism goods and services to the end user. This includes the obvious industries such as hotels, resorts, travel agencies, tour operators and the transportation industry. The flow-through impact of foregone tourism revenue to secondary (indirect) providers was approximately 21% of the initial impact. The remaining 13% of the initial impact leaks out of the economy through imports and thus affects other countries.

Total Impact

Because of the higher than average impact of international tourism expenditures on an economy, Egypt suffered an economic loss at a factor of approximately 1.98 times the initial absence of tourism spending. This multiplier reflects the impact that lost wages, profits and taxes have on the economy as Egyptian residents and companies spend less as a result of the incident. The *total* economic impact of the incident was \$3.593 billion over the five-year period.

To put this in perspective, the table below shows the total impact allocated among the calendar years 1997-2001 as a share of total Egyptian GDP. The largest impact is in 1998 when the impact amounts to 2.58% of total GDP. Although this seems high at first glance, one needs to keep in mind that visitor receipts alone (excluding fares) accounted for 5.1 percent of GDP in 1997. This dropped to 3.8 percent of GDP in 1998.

Table 9

Calendar Year	Economic Impact as a Share of GDP		
	GDP, Mill \$US	Total Impact	Share of GDP
1996	67,315.74		0.00%
1997	75,589.97	570.90	0.76%
1998	78,020.63	2,015.61	2.58%
1999	85,419.52	684.67	0.80%
2000	93,065.70	273.01	0.29%
2001	102,560.62	49.64	0.05%
2002	113,525.93		0.00%

Impact on Capital Investment

An additional area of economic impact that was explored was the negative effect on capital investment. Interviews and statistical analysis showed that new tourism-related capital investment was delayed in some cases as securing finances was difficult temporarily. However, these financing issues were quickly resolved through reassurance from state officials. Construction and other investment activities already underway were not hindered and according to some developers were actually expedited due to the lull in

tourism demand. The evidence supports that long-term investment decisions were not adversely affected by the incident which was deemed to have a short-term impact. The prospects for future investment in tourism-related structures and equipment remain positive. Minister of Tourism Mamdouh al-Beltagi cited statistics which indicate over 600 current tourism-related projects are being implemented across Egypt at a cost of \$9.1 billion (31 billion Egyptian pounds). The Ministry of Tourism anticipates an increase of 112,000 hotel rooms over the next five years. If only half of this amount is realized, the existing base of 76,000 rooms would experience an expansion of almost 75%.

Mitigating Factors to Economic Impact

Many tour operators and hotels reported major losses over the year following the incident as countries instituted travel warnings. Tourism seemed destined to plummet and the timing of its return was in serious question. Yet the data reflect something of a different story. The losses, although significant, do not seem as cataclysmic as originally anticipated. In addition, Egypt's recovery seems to be quicker than anyone imagined in the aftermath of such tragedy.

More than one factor has mitigated the severity of the Luxor incident's economic impact. The first is business travel. The business traveler is generally quarantined from the risk assumed by tourist visitors. Thus, the Luxor incident did not dissuade these travelers from visiting Egypt. In addition, Arab visitors stepped in to fill in some of the gap left by European, American and Asian visitors. In fact, tourism ministers from 20 Arab countries helped to promote tourism in Egypt as a show of support. 1998 was declared the "Year of Arab Tourism to Egypt". Visa fees for Arabs were cancelled and land travel fares were slashed. The impact of Arab visitors will continue to be strong as low oil prices subdue growth in the region and compel Arab tourists to prefer Egypt to a higher-priced European vacation.

The government of Egypt has also taken steps in order to position Egypt for a swift recovery. In July 1998, the "Tourism and Shopping Festival" was organized with accompanying promotion in the Gulf States and Eastern Europe. Malls and bazaars offered discounts throughout Cairo. Although its success was deemed somewhat limited, the data reflect the typical seasonal increase for late summer in 1998. In addition, the Egyptian government has increased its efforts to diversify its source tourism markets to include Latin America, Eastern Europe and all of the Middle East. New brochures and a public-private partnership have been launched to increase tourism promotion. Also, the tourism product itself is being diversified with the addition of desert safaris, conferences and pilgrimages to Egypt's traditional product base.

The government has also tightened security at major tourist sites. There have been no significant attacks on tourists since "Luxor". The replacement of key personnel and the addition of others seem to be paying off. Although, the future remains in question, the tourist has responded to these security improvements.

In addition to heightened security acting as a deterrent, the public outcry and revulsion to the Luxor incident has damaged the ability of militant Islamist groups to gain new recruits. The leadership of these organizations is deeply divided over the effectiveness of terrorism in achieving their goals. At the same time, the Egyptian state has been aggressive in clamping down on radical groups. These factors have led to a weakened

opposition to Mubarak and an absence of terrorist activity toward tourists over the past year.

By observing the historical response of tourists to similar (although of lesser magnitude) events, one can observe that tourists do not allow fear from past events to determine preferences for long. In 1996, the impact of the shooting at a Cairo hotel was negligible. Egypt experienced three separate terrorist acts toward tourists in 1995—a year when tourism receipts increased 33%.

A few explanatory factors stand out. The first is that Egypt has an incredibly resilient tourism product. Its natural and historical attractions seem to consistently supercede potential danger in the mind of the tourist. The second is that tourists tend to be natural risk takers. Although it is difficult to quantify this using econometric models, the “it won’t happen to me” syndrome is well supported by the historical data.

So it is not entirely surprising that the impact of what Tourism Minister, Mamdouh el-Beltagi called “the biggest crisis in the history of tourism in Egypt” in January of 1998 showed signs of softening within seven months.

However, the possibility of future attacks remains and the forgiving spirit of the tourist cannot be presumed upon. The cumulative effect of terrorism directed toward tourists could potentially create a stigma that would dampen tourism in Egypt indefinitely.